4.2 Air Quality

The information and analysis presented in this section of the EIR is based on the Air Quality Assessment dated April 13, 2009 prepared by Mestre Greve Associates and the Greenhouse Gas Assessment dated April 13, 2009 prepared by Mestre Greve Associates.

The complete Air Quality Assessment is provided in the Technical Appendices to the EIR (Appendix B) and is herein incorporated by reference. The Air Quality Assessment has been conducted consistent with guidelines and methods approved by the South Coast Air Quality Management District (SCAQMD) for assessing mobile source air emissions for grading, construction, and operation.

The complete Greenhouse Gas Assessment is provided in the Technical Appendices to the EIR (Appendix C) and is herein incorporated by reference.

4.2.1 Environmental Setting

The project is located on the western portion of Huntington Beach in Orange County. The DTSP boundaries cover an area of approximately 336 acres located within the City's downtown. The DTSP area extends from the intersection of Goldenwest Street with Pacific Coast Highway and curves along the coastline, including the Huntington Beach Pier, down to Beach Boulevard. The inland boundary of the DTSP area follows the prolongation of Sunrise Drive from Beach Boulevard to Pacific View Avenue where the boundary curves along Huntington Street and Atlanta Avenue. From Atlanta Avenue, the boundary flows along Orange Avenue and continues up Lake Street to Palm Avenue where it connects to Main Street and along Pacific View Avenue to link down along 6th Street. From 6th Street, following along Walnut Avenue to Goldenwest Street, parcels within the first block adjacent to Pacific Coast Highway are included in the DTSP area. All boundary lines follow the centerline of the affected street.

This area is a portion of the larger South Coast Air Basin (SCAB), which is comprised of Los Angeles and Orange Counties, the western portion of Riverside County, and the southwestern portion of San Bernardino County. Air quality in the SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Rules and regulations of this agency are designed to achieve established air quality standards that are protective of public health. To this purpose, they limit the emissions and the permissible impacts of emissions from projects and specify emissions controls and control technologies for each type of emitting source (point-sources).

1. Climate

The project site's climate, as with all of Southern California, is dominated by the strength and position of the semi-permanent subtropical high pressure center over the Pacific Ocean. This center creates cool summers, mild winters, and infrequent rainfall, drives the cool daytime sea breeze, and maintains comfortable humidity and ample sunshine. Unfortunately, the same atmospheric processes

that create the desirable living climate combine to restrict the ability of the atmosphere to disperse the air pollution generated by the large population attracted in part by the comfortable climate. Therefore, portions of the South Coast Air Basin experience some of the worst air quality in the nation for certain pollutants.

Temperatures in Huntington Beach average 62°F annually. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby oceanic heat reservoir. In contrast to the steady temperature regime, rainfall is highly variable, and confined almost exclusively to the "rainy" period from early November to mid-April. Rainfall in the project area averages around 12 inches annually with January typically the wettest month of the year.

Winds in the project area are usually driven by the land/sea breeze system discussed above. Regional wind patterns are dominated by daytime onshore breezes. During the day, especially in summer, winds are from the west at 7 to 9 miles per hour. At night, especially in winter, the land becomes cooler than the ocean and an offshore wind of 3 to 5 miles per hour develops. The frequency of calm winds (less than two miles per hour) is less than 10%. Therefore, there is little stagnation in the project vicinity, especially during busy daytime traffic hours.

In addition to winds that govern the horizontal rate and trajectory of any air pollutants, Southern California experiences several characteristic temperature inversions that control the vertical depth through which pollutants can be mixed. The daytime onshore flow of marine air is capped by a massive dome of warm air that acts like a giant lid over the basin. As the clean ocean air moves inland, pollutants are continually added from below without any dilution from above. As this layer slows down in inland valleys of the basin and undergoes photochemical transformations under abundant sunlight, very unhealthful levels of smog (mainly ozone) are created.

A second inversion forms at night as cool air pools in low elevations while the air aloft remains warm. Shallow radiation inversions are formed (especially in winter) that trap pollutants near intensive traffic sources such as freeways and shopping centers, and form localized violations of clean air standards called "hot spots." Although inversions are found during all seasons of the year, the regional capping inversion is far more prevalent in summer, while the localized radiation inversions are strongest in winter. The strong seasonal split in inversion intensity thus contributes significantly to the completely different air quality climate found in summer in the project vicinity than in winter. Because traffic concentrations in the project area are moderate, and because individual cars are becoming progressively "cleaner," air quality concerns in the Huntington Beach area are more centered on the regional, summertime intrusion of photochemical smog (ozone) than on any winter micro-scale stagnation conditions.

2. Ambient Air Quality Standards

To gauge the significance of the air quality impacts of the proposed DTSP Update, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. The standards are designed to protect those

people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National Ambient Air Quality Standards (AAQS) were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule that extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 4.2.1. Sources and health effects of various pollutants are shown in Table 4.2.2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "$PM_{2.5}$"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for $PM_{2.5}$ and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. However, the Court did find that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to "non-attainment" for the 8-hour ozone standard.

Because the South Coast Air Basin was far from attaining the 1-hour federal standard, the 8-hour ozone non-attainment designation did not substantially alter the attainment planning process. As noted above, compliance deadline for meeting the 8-hour ozone standard has been extended to 2021.

Table 4.2.1
Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1,3]	Federal Standards[2]	
			Primary[3,4]	Secondary[3,5]
Ozone (O_3)[9]	1 Hour	0.09 ppm (180 µg/m³)	--	--
	8 Hour	0.070 ppm (137 µg/m³)	0.075 ppm (147 µg/m³)	Same as Primary
Respirable Particulate Matter (PM_{10})[8]	24 Hour	50 µg/m³	150 µg/m³	Same as Primary
	AAM[6]	20 µg/m³	--	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)[8]	24 Hour	--	35 µg/m³	Same as Primary
	AAM[6]	12 µg/m³	15 µg/m³	Same as Primary
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	None
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)	--	--
Nitrogen Dioxide (NO_2)	AAM[6]	0.030 ppm (56 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
	1 Hour	0.18 ppm (438 µg/m³)	--	--
Sulfur Dioxide (SO_2)	AAM[6]	--	0.030 ppm (80 µg/m³)	--
	24 Hour	0.04 ppm (105 µg/m³)	0.14 ppm (365 µg/m³)	--
	3 Hour	--	--	0.5 ppm (1,300 µg/m³)
	1 Hour	0.25 ppm (655 µg/m³)	--	--
Lead[7]	30 day Avg.	1.5 µg/m³	--	--
	Calendar Quarter	--	1.5 µg/m³	Same as Primary
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km -- visibility ≥ 10 miles (0.07 per km -- ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 µg/m³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)		
Vinyl Chloride7	24 Hour	0.01 ppm (26 µg/m³)		

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.
2. National standards (other than ozone, $PM_{10,}$ $PM_{2.5,}$, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25˚ C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25˚ C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
6. Annual Arithmetic Mean
7. The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
8. On September 21, 2006 EPA revoked the annual 50 µg/m³ PM_{10} standard and lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m³. Attainment designations are to be issued by November 2009 with attainment plans due April 2013.
9. On March 12, 2008 EPA lowered the 8-hour Ozone standard to 0.075 ppm from 0.08 ppm. Attainment designations are to be issued by March 2010 with attainment plans due by March 2013

-- No Standard

Table 4.2.2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM_{10})	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter ($PM_{2.5}$)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOX, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide $PM_{2.5}$ standard that is more stringent than the federal standard. This standard was adopted on June 20, 2002. The California $PM_{2.5}$ standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in April 2005, which mirrors the federal standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.08 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. As part of the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide (NO_2) that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for $PM_{2.5}$ were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM_{10} standards were revoked, and a distinction between rural and urban air quality was adopted.

Of the standards shown in Table 4.2.1 (page 4-30 above), those for ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$) are exceeded at times in the South Coast Air Basin. They are called "non-attainment pollutants." Because of the variations in the regional meteorology and in area-wide differences in levels of air pollution emissions, patterns of non-attainment have strong spatial and temporal differences. Table 4.2.2 (page 4-31 above) shows the health effects for various criteria pollutants in the South Coast Air Basin.

3. Baseline Air Quality

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the South Coast Air Quality Management District (SCAQMD) at its Costa Mesa monitoring station on Mesa Verde Drive about four miles west of the project. The data collected at the Cost Mesa station is considered representative of the air quality experienced in the vicinity of the project. The air pollutants measured at the Costa Mesa station include ozone, carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2). Particulates are not monitored at the Costa Mesa station. The nearest station where particulates are monitored is the Anaheim station, which is located 12 miles to the northeast of the project site. PM_{10} and $PM_{2.5}$ are among the pollutants monitored at the Anaheim station. Table 4.2.3 summarizes the published data from this monitoring station from 2005 to 2007.

Table 4.2.3
Air Quality Levels Measured at the Costa Mesa/Anaheim Monitoring Stations

Pollutant	California Standard	National Standard	Year	% Measured[1]	Maximum Level	Days State Standard Exceeded[2]	Days National Standard Exceeded[2]
Ozone	0.09 ppm	None	2007	92	0.082	0	0
1 Hour Average			2006	99	0.074	0	0
			2005	90	0.085	0	0
Ozone	0.070 ppm	0.08 ppm[4]	2007	92	0.072	2	0
8 Hour Average			2006	99	0.062	0	0
			2005	90	0.072	2	0
CO	20 ppm	35 ppm	2007	95	4.5	0	0
1 Hour Average			2006	98	3.5	0	0
			2005	96	4.7	0	0
CO	9.0 ppm	9 ppm	2007	95	3.1	0	0
8 Hour Average			2006	98	3.0	0	0
			2005	96	3.2	0	0
NO_2	0.25 ppm	None	2007	98	0.086	0	n/a
1 Hour Average			2006	99	0.114	0	n/a
			2005	97	0.089	0	n/a
NO_2	None	0.053 ppm	2007	98	0.020	n/a	No
AAM[3]			2006	99	0.020	n/a	No
			2005	97	0.021	n/a	No
SO_2	0.04 ppm	0.14 ppm	2007	94	0.004	0	0
24 Hour Average			2006	92	0.005	0	0
			2005	94	0.008	0	0
SO_2	None	0.030 ppm	2007	94	0.001	n/a	No
AAM[3]			2006	92	0.001	n/a	No
			2005	94	0.001	n/a	No
Respirable	50 µg/m^3	150 µg/m^3	2007	93	74	0	0
Particulates PM_{10}			2006	75	75	1/--	0
24-Hour Average			2005	90	41	0	0
Respirable	20 µg/m^3	50 µg/m^3	2007	93	23	yes	no
Particulates PM_{10}[4]			2006	75	21	yes	no
AAM[3]			2005	90	18	yes	no
Fine Particulates	None	65 µg/m^3	2007	47	34.3	n/a	0
$PM_{2.5}$[4]			2006	84	46.9	n/a	0
24-Hour Average			2005	92	35.3	n/a	0
Fine Particulates	12 µg/m^3	15 µg/m^3	2007	47	not reported	not reported	not reported
$PM_{2.5}$			2006	84	not reported	not reported	not reported
AAM[3]			2005	92	10.6	0	0

1 Percent of year where high pollutant levels were expected that measurements were made.

2 For annual averaging times a "yes" or "no" response is given if the annual average concentration exceeded the applicable standard. For the PM_{10} 24-hour standard, daily monitoring is not performed. The first number shown in Days State Standard Exceeded column is the actual number of days measured that state standard was exceeded. The second number shows the number of days the standard would be expected to be exceeded if measurements were taken every day.

3 Annual Arithmetic Mean

4 On September 21, 2006, US EPA announced that it was revoking the annual average PM_{10} standard and lowering the 24-hour $PM_{2.5}$ standard to 35 µg/m^3. The previous standards are presented, as the new standards are not fully implemented at this time.

5 On March 12, 2008, the US EPA announced that it was revising the 8-hour ozone standard from 0.08 ppm to 0.075 ppm. The previous standard is presented, as the new standard has not been fully implemented at this time.

n/a – no applicable standard

Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam; accessed 12/10/08

The Costa Mesa monitoring data presented in Table 4.2.3 shows that ozone is the air pollutant of primary concern in the project area. The Federal and State 1-hour standard was not exceeded in the last three years. The federal 8-hour standard was exceeded 2 days each year in 2005 and 2007. There does not seem to be a trend towards lower maximum levels or the number of days exceeding the state and federal ozone standards.

Particulate matter (PM_{10} and $PM_{2.5}$) is another air pollutant of primary concern in the area. The state 24-hour standard for PM_{10} has been exceeded at the Anaheim monitoring station only 1 day between 2005 and 2007, but the federal standard for PM_{10} was not exceeded. The annual average PM_{10} concentration has exceeded the state standards for the past three years, while the federal annual PM_{10} standard was not exceeded. The federal annual $PM_{2.5}$ standard was also not exceeded in the last 3 years. There appears to be a trend toward fewer days of exceedances, but not the maximum levels for both PM_{10} and $PM_{2.5}$. Particulate levels in the area are due to natural sources, grading operations and motor vehicles.

Carbon monoxide (CO) is another important pollutant that is due mainly to motor vehicles. Currently, CO levels in the project region are in compliance with the state and federal 1-hour and 8-hour standards. High levels of CO commonly occur near major roadways and freeways. CO may potentially be a continual problem in the future for areas next to freeways and other major roadways.

The monitored data shown in Table 4.2.3 shows that other than ozone and PM_{10} exceedances as mentioned above, no state or federal standards were exceeded for the remaining criteria pollutants. Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

4. Air Quality Planning

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The South Coast Air Basin (SCAB) could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM_{10}. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NO_X) and for carbon monoxide (CO) and for particulate matter are shown in Table 4.2.4. Substantial reductions in emissions of ROG, NO_X and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM_{10} and $PM_{2.5}$ are forecast to slightly increase.

Table 4.2.4
South Coast Air Basin Emissions Forecasts (Emissions in Tons/Day)

Pollutant	2005*	2010**	2015**	2020**
NO_X	957	756	586	496
ROG	684	567	517	492
CO	3838	2943	2395	2056
PM_{10}	276	278	284	292
$PM_{2.5}$	97	97	98	100

*2005 base year
** With current emissions reduction programs and adopted growth forecasts
Source: California Air Resources Board, The 2006 California Almanac of Emissions & Air Quality

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 AQMP was approved by the EPA in 2004. The Air Quality Management Plan (AQMP) outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM_{10}) by 2006. Components of the 2003 air plan included:

- How the federal standard for CO will be maintained.
- Control measures to further reduce emissions from business, industry and paints.
- Measures to be adopted by CARB and EPA to further reduce pollution from: cars, trucks, construction equipment, aircraft, ships and consumer products.

With redesignation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan has been developed. This plan shifts most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date will "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal $PM_{2.5}$ standard.

The 2007 AQMP was adopted on June 1, 2007, after extensive public review. The 2007 AQMP recognizes the interaction between photochemical processes that create both ozone and the smallest airborne particulates ($PM_{2.5}$). The 2007 AQMP is therefore a coordinated plan for both pollutants. Key emissions reductions strategies in the updated air quality plan include:

- Ultra-low emissions standards for both new and existing sources (including on-road and off-road heavy trucks, industrial and service equipment, locomotives, ships and aircraft).
- Accelerated fleet turnover to achieve benefits of cleaner engines.
- Reformulation of consumer products.

- Modernization and technology advancements from stationary sources (e.g., refineries, power plants).

Development, such as that which could occur through the DTSP Update, does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing "general" development. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of master planned growth is determined. If a given project incorporates any available transportation control measures that can be implemented on a project-specific basis, and if the scope and phasing of a project are consistent with adopted forecasts as shown in the Regional Comprehensive Plan (RCP), then the regional air quality impact of project growth would not be significant because of planning inconsistency. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

The General Plan includes an Air Quality Element that provides a local framework designed to influence planning and development decisions geared toward improving air quality through balanced communities, the spatial mix of land uses, increased transit-friendly development standards, and amenities that encourage alternative transportation opportunities. Many of these strategies are reflected in the revised development and zoning regulations that will be applied to the DTSP area through the proposed update.

4.2.2 Significance Criteria

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they measurably contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

- Conflicts with or obstructs implementation of the applicable air quality plan.
- Violates any air quality standard or contributes substantially to an existing or projected air quality violation.
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Exposes sensitive receptors to substantial pollutant concentrations.
- Creates objectionable odors affecting a substantial number of people.

Projects within the SCAB with daily emissions that exceed any of the emission thresholds in Table 4.2.5 are recommended by the SCAQMD to be considered significant:

Table 4.2.5
SCAQMD Regional Pollutant Emission Thresholds of Significance

	Pollutant Emissions (lbs/day)					
	CO	VOC	NO_X	PM_{10}	$PM_{2.5}$	SO_X
Construction	550	75	100	150	55	150
Operation	550	55	55	150	55	150

1. Additional Indicators

In its CEQA handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation.
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- Project could generate vehicle trips that cause a CO hot spot.

The SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous or odorous air contaminants. Hazardous air contaminants are contained within the small diameter particulate matter ($PM_{2.5}$) fraction of diesel exhaust. Such exhaust would be generated by heavy off-road construction equipment and by diesel-powered delivery trucks that may deliver construction materials to developments proposed in the future as a result of adoption of the DTSP Update.

Health risks from toxic air contaminants (TACs) are cumulative over an assumed 70-year lifespan. Measurable off-site public health risk from diesel TAC exposure would occur for only a brief portion of a project lifetime during facility construction, and only in dilute quantity because of substantial source-receiver separation.

2. Sensitive Receptors

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called "sensitive receptors." Sensitive population groups include young children, the elderly and the acutely and chronically ill (especially those with cardio-respiratory disease).

Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. Schools are similarly considered to be sensitive receptors. As each specific project is proposed and analyzed in the future implementation of the DTSP area, air quality analysis will examine the impact on sensitive receptors located near the proposed sites.

4.2.3 Impacts

1. Short-Term Air Quality Impacts

Temporary impacts will result from project construction activities. Air pollutants will be emitted by construction equipment, and fugitive dust will be generated during demolition of the existing improvements as well as during grading and excavation of a construction site.

a. Construction Emission Calculation Methodology

Emissions during the primary phases of construction were calculated using URBEMIS2007 program (version 9.2.4). URBEMIS is a computer program generated by the California Air Resources Board (CARB) that calculates emissions for construction and operation of development projects. For on-road vehicular emissions, the URBEMIS model utilizes the EMFAC2007 emission rates that have also been developed by CARB.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the proposed project site. Emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM_{10} emissions during site grading and other disturbance are stated in the SCAQMD Handbook to be 26.4 pounds/acre. This estimate is based upon required dust control measures in effect in 1993 when the AQMD CEQA Air Quality Handbook was prepared. Rule 403 was subsequently strengthened to require use of a greater array of fugitive dust control on construction projects. All construction projects in the SCAQMD are required to use strongly enhanced control procedures. Use of enhanced dust control procedures such as continual soil wetting, supplemental binders, and early paving can achieve a substantially higher PM_{10} control efficiency. Daily emissions with use of reasonably available control measures (RACMs) for PM_{10} can reduce emission levels to around 10 pounds per acre per day. With the use of best available control measures (BACMs) the California Air Resources Board URBEMIS2007 computer model predicts that emissions can be reduced to 1 to 2 pounds per acre per day.

b. Construction Activities

The DTSP area is approximately 336 acres in size. The maximum new development potential of the project includes approximately 213,467 square feet of retail, 92,332 square feet of restaurant, 92,784 square feet of office, 30,000 square feet of cultural facilities, 648 residential units, and 235-room hotel land uses. The maximum build-out does not take into account unique constraints on individual parcels. The build-out will occur over time in response to market demand, and thus it is unknown when complete build-out will occur. The traffic study shows a build-out year 2030. Therefore, the construction timeframe of the project is assumed to occur between 2010 and 2030.

The Air Resources Board URBEMIS2007 computer model predicts that with the use of RACMs, daily PM_{10} emissions during site grading would be 55.8 pounds per day. The SCAQMD significance threshold of 150 pounds per day would not be exceeded. With the use of Best Available Control Measures (BACMs), daily PM_{10} emissions can be further reduced. Because of the PM_{10} non-attainment status of the air basin, construction activity dust emissions are considered to have a cumulatively significant impact. Use of BACMs is thus required even if SCAQMD individual CEQA thresholds are not exceeded by use of RACMs.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small-diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates, or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller in diameter ("$PM_{2.5}$") was adopted in 1997. A limited amount of construction-related particulate matter is in the $PM_{2.5}$ range. $PM_{2.5}$ emissions are estimated by the SCAQMD to comprise 20.8% of PM_{10}. Other studies have shown that the fugitive dust fraction of $PM_{2.5}$ is closer to 10%. Daily $PM_{2.5}$ emissions during construction will be less than 19 pounds per day compared to the SCAQMD CEQA significance threshold of 55 pounds per day.

In addition to fine particles that remain suspended in the atmosphere semi-indefinitely, construction activities generate many larger particles with shorter atmospheric residence times. This dust is comprised mainly of large diameter inert silicates that are chemically non-reactive and are further readily filtered out by human breathing passages. These fugitive dust particles are therefore more of a potential soiling nuisance as they settle out onto parked cars, outdoor furniture, or landscape foliage rather than any adverse health hazard. The deposition distance of most soiling nuisance particulates is less than 100 feet from the source (EPA, 1995).

c. Construction Emissions

Exhaust emissions will result from on-site and off-site heavy equipment. Since little specific information is available regarding the equipment that will be used for construction, the URBEMIS defaults have generally been used for the air quality analysis. The types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Initial clearing and heavy grading and infrastructure development will gradually shift toward building construction and then for finish construction, paving, and landscaping. The URBEMIS2007 computer model was used to calculate emissions from the equipment is likely utilized during construction and also identified in the prototype construction equipment fleet shown in Table 4.2.6.

Table 4.2.6
Prototype Construction Equipment Fleet

Grading	1 Grader
	1 Rubber Tired Dozer
	1 Tractor/Loader/Backhoe
	1 Water Truck
Paving	1 Paver
	1 Paving Equipment
	4 Cement Mixers
	1 Tractor/Loader/Backhoe
	1 Roller
Construction	1 Crane
	2 Forklifts
	1 Generator Set
	2 Tractor/Loader/Backhoe
	1 Trencher
	2 Welders

Project construction includes many components, ranging from grading to building construction to architectural coatings.

Mass site grading is the grading of the entire project site. This work may occur simultaneously with other construction phases. Table 4.2.6 identifies an example of the prototype construction equipment fleet that might be utilized but varies depending on the type of construction, location and site preparation, and building to be constructed. Equipment used in the URBEMIS default assumption includes one excavator, one grader, one dozer, three scrapers, three tractors/loaders/backhoes, and one water truck. A major component of the grading emissions is the particulate matter generated by grading activities. If water or other soil stabilizers are used to control dust as required by SCAQMD Rule 403, the emissions can be substantially reduced (e.g., 50% or more depending on dust control application type and frequency). The particulate matter calculations include 61% from watering (refer to Volume II, Appendix B, Air Quality Assessment).

Building construction is the phase of construction when buildings are erected. Building construction emissions were calculated for the portion of construction during which the greatest amount of activity that will result in the highest emissions. Equipment used in the URBEMIS default assumption include one crane, three forklifts, one generator set, one welder, and three tractor/loaders/backhoes.

Asphalt paving generates diesel engine exhaust from the paving equipment and asphalt material haul trucks, as well as fugitive ROG emissions from the asphalt itself. Asphalt emissions were estimated utilizing URBEMISv9.2.4 default assumptions. The equipment required during project asphalt paving would include one paver, two rollers, and two paving equipment.

Architectural coatings include painting exterior and interior walls as well as coatings applied to windows and window casings. ROGs are emitted from these coatings and the solvents used in cleanup of the coatings. The amount of ROGs that are emitted is dependent on the specific coating being used and its VOC content. For this project, only low-VOC paint is assumed to be utilized. Architectural coatings emissions were estimated utilizing URBEMISv9.2.4 default assumptions. The data used to calculate painting are emissions are included in Volume II, Appendix B.

Table 4.2.7 presents the results of the total emissions calculations for the construction activities discussed above. These emissions represent the highest level of emissions during construction, if all construction phases would occur simultaneously. This is a reasonable assumption for this type of project, since it is likely that development of different areas will be started at different times. So it is possible to have construction in all the phases going on at the same time. Construction emissions were calculated for years 2010 through 2030. Construction emissions are projected to decrease in future years (as projected by EMFAC2007), and therefore, emissions during 2010 are the highest and are presented below as a worst case scenario. The projected emissions are compared to the Significance Thresholds in Table 4.2.5 (page 4-37).

Table 4.2.7
Project Construction Emissions (Pounds/Day)

Activity	Pollutant Emissions (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Site Grading/Construction Equipment	6.0	46.4	26.2	0.0	25.2	7.2
Building/Construction Equipment	15.4	103.7	149.3	0.2	29.0	10.3
Architectural Coating	3.0	0.0	0.1	0.0	0.0	0.0
Asphalt Paving/Construction Equipment	3.1	18.1	10.8	0.0	1.6	1.4
Total Construction Emissions	27.5	168.3	186.4	0.2	55.8	19.0
SCQAMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*

Source: URBEMIS2007 Model, Output in Air Quality Analysis Appendix

The projected construction emissions are above the significance thresholds established by the SCAQMD for NO_X emissions without mitigation. In general, the primary source of NO_X emissions would be from grading and building construction equipment. The project construction emissions are considered to be significant, therefore, mitigation measures are recommended to the greatest extent possible in Section 4.2.4, Mitigation Measures.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to exposure for a 70-year lifetime, 24 hours per day, 365 days per year. Public exposure to heavy equipment emissions will be an extremely small fraction of the above dosage assumption. Diesel equipment is also becoming progressively "cleaner" in response to air quality rules on new off-road equipment. Any public health risk associated with project-related heavy equipment operations exhaust is therefore not quantifiable, but small.

Construction activity air quality impacts occur mainly in close proximity to the surface disturbance area. However, there may be some "spill-over" into the surrounding community. That spill-over may be physical as vehicles drop or carry out dirt or silt is washed into public streets. Passing non-project vehicles then pulverize the dirt to create off-site dust impacts. "Spillover" may also occur via congestion effects. Construction may entail roadway encroachment, detours, lane closures, and competition between construction vehicles (trucks and contractor employee commuting) and ambient traffic for available roadway capacity. Emissions controls require good housekeeping procedures and a construction traffic management plan that will maintain such "spill-over" effects at a less-than-significant level.

2. Operational Impacts

Possible project-related air quality concerns will derive from the mobile source emissions that will be generated from the range of uses proposed for the project area. At project build-out, daily trip generation is estimated to be 13,397 trips per day.

Operational emissions for project-related traffic were calculated using a computerized procedure developed by the California Air Resources Board (CARB) for urban growth mobile source emissions. The URBEMIS2007 model was run using the trip generation factors specified by the

project traffic consultant for the DTSP. The proposed DTSP Update entails a maximum development potential of approximately 213,467 square feet of retail, 92,332 square feet of restaurant, 92,784 square feet of office, 30,000 square feet of cultural facilities, 648 residential units, and 235-room hotel land uses. The model was used to calculate area source emissions and the resulting vehicular operational emissions for an assumed project build-out year of 2030. The results are shown in Table 4.2.8.

The project will cause some of the SCAQMD's recommended threshold levels to be exceeded. Specifically ROG and PM_{10} emissions are projected to exceed SCAQMD thresholds. Since the project emissions are above those significance thresholds, the project will result in significant regional air quality impacts, for which long-term mitigation measures are recommended.

Table 4.2.8
Net Increase in Emissions

Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Proposed DTSP - 2030						
Area Source Emissions	39.3	12.1	16.7	0.0	0.1	0.1
Operational (vehicle) Emissions	38.8	38.0	419.7	1.3	217.2	42.1
Total Net Increase in Emissions	***78***	50	436	1	***217***	42
SCQAMD Thresholds	55	55	550	150	150	55

Note: ***Bold/italics*** data indicates exceedances.

a. Microscale Impact Analysis

Micro-scale air quality impacts have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for carbon monoxide (CO). However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots" anywhere in the air basin, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in Orange County. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts near the facility will be well below thresholds with an even larger margin of safety.

The traffic study prepared for the project indicated that none of the local street intersections in the DTSP project area have peak hour traffic volumes that exceed those at the intersections modeled in the SCAQMD analysis. In 2030, the highest peak p.m. traffic volume of 5,128 vehicles is projected to occur at the Pacific Coast Highway and Warner Avenue intersection with LOS E with project. This peak volume is lower than the peak volumes at the four intersections modeled in the SCAQMD analysis. As a result, the project is not projected to result in a significant local air quality impact.

b. Greenhouse Gas Emissions

Greenhouse gases (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing

terrestrial long wavelength heat radiation. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The main greenhouse gases that enter the atmosphere because of human activities include the following:[1]

- **Carbon Dioxide (CO_2)**: Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH_4)**: Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide (N_2O)**: Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases**: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for *ozone-depleting substances* (e.g., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("high GWP gases").

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. The Governor's Office of Planning and Research is in the process of developing CEQA significance thresholds for GHG emissions but thresholds have yet to be established. GHG statutes and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG

[1] http://www.epa.gov/climatechange

reductions, are the short time frames within which it must be implemented. Major components of AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25% to40%, from business as usual, over the next 13 years (by 2020).
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Additionally, through the California Climate Registry (CCAR), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (e.g., company owned) and indirect sources (e.g., not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

Implementation of the proposed project would contribute to long-term increases in greenhouse gases (GHGs) as a result of traffic increases (mobile sources) and minor secondary fuel combustion emissions such as from space heating. Development occurring as a result of the proposed project would also result in secondary operational increases in GHG emissions as a result of electricity generation to meet project-related increases in energy demand. Electricity generation in California is mainly from natural gas-fired power plants. However, since California imports about 20% to 25% of its total electricity (mainly from the northwestern and southwestern states), GHG emissions associated with electricity generation could also occur outside California.

GHG emissions associated with the project were calculated by using URBEMISv9.2.4. URBEMISv9.2.4 is a computer model published by the California Air Resources Board (CARB) that calculates EMFAC2007 emission factors. To calculate the GHG emissions produced from the project, the proposed land uses and daily vehicle trips were utilized. The average daily trip (ADT) generation for the proposed DTSP was obtained from the traffic study prepared by Kimley-Horn and Associates, Inc. revised June 2009. The project's daily trip generation is projected to be 13,397. The proposed DTSP entails maximum development potential of approximately 213,467 square feet of retail, 92,332 square feet of restaurant, 92,784 square feet of office, 30,000 square feet of cultural facilities, 648 residential units, and 235-room hotel land uses.

The square footages and emission factors utilized in calculating the emissions with these sources are provided in Volume II, Appendix B. The annual project emissions were analyzed and are presented in Table 4.2.9.

Table 4.2.9
Total Project Net Emissions – Year 2030

Source	Tons/Year CO_2
Operational	
-Vehicles	23,007
Area Source	
- Natural Gas	2,704
- Hearth	83
- Landscape	3
Total Project Emissions:	**25,794**
Total Emissions in Metric Tons Per Year	**23,403**

Note: URBEMISv9.2.4 model does not include other GHG emissions (such as CH_4, N_2O, and fluorinated gases). These non-CO_2 gases represent a very small percentage of the total GHG emissions.

Table 4.2.9 shows that 89% of the GHG emissions (as expressed in CO_2 equivalents) generated by the project are projected to be from motor vehicles. Natural gas consumption accounts for only 11% of the GHG emissions, and other area source emissions are negligible.

The GHG emissions were also projected for future years beyond 2030 and are presented in Table 4.2.10. The analysis indicates that there will be an increase in GHG emissions between 2030 and 2040. This is likely a conservative estimate, as newer and more fuel efficient models of automobiles are released in the coming years based on new federal fuel efficiency requirements. Neither the U.S. EPA nor the CARB currently regulates CO_2 emissions.

Table 4.2.10
Project Trend of GHG Emissions

Year	Tons/Year CO_2
2030	23,403
2040	23,763

Table 4.2.11 compares the GHG emissions from the project to total emissions in SCAB. This comparison shows that the project represents a very small fraction of total GHG emissions.

Table 4.2.11
Comparison of Project Emissions with SCAB Emissions

	Pollutant Emissions (tons/day)					
	CO	VOC	NO_X	PM_{10}	$PM_{2.5}$	SO_X
Project Net Increase in Emissions	0.04	0.03	0.22	0.00	0.11	0.02
2023 South Coast Air Basin*	2,147	95	539	508	318	102
Emissions as Percentage of Basin	0.0018%	0.0263%	0.0405%	0.0001%	0.0342%	0.0207%

Source: 2007 AQMP Table 3-5A except PM_{10} from 2003 AQMP Tables 3-5A and 3-5B

The emissions generated by this project will contribute a miniscule amount to the overall climate change issue. By way of comparison, the data from the South Coast Air Basin indicates that the project would contribute slightly more than 0.04% to the GHG burden for the SCAB. The air quality/greenhouse gas analysis considered project impacts at the cumulative level and examined whether any potential increase in GHG emissions associated with the project should be considered significant on a cumulative basis.

According to the guidance in the draft CEQA Guidelines §15064.4, a lead agency may consider the extent to which the project complies with regulations or requirements adopted to implement a

statewide, regional, or local plan for the reduction or mitigation of GHG emissions when determining the significance of impacts. The CCAT Report to the Governor (CAT 2006) outlines strategies for meeting the Governor's emission reduction targets contained in Executive Order S-3-05. Many of the CCAT strategies are applicable only to agencies such as CARB. Therefore, other sources including the California Attorney General have been used to identify additional measures that would be available on a project-by-project basis to reduce emissions of GHGs. Further, draft CEQA Guidelines §15064.4(a)(2) states that a lead agency may rely on qualitative or other performance-based standards for estimating the significance of GHG emissions. Therefore, since the project includes measures that are consistent with strategies recommended by the CCAT and the California Attorney General, and due to the type of development allowed under the proposed Specific Plan, the impact associated with GHG emissions during project operation are considered less than significant.

No regulations have yet been promulgated as a result of AB 32. So far, the CARB indicates that the first wave of regulations will address emissions from major industrial and agricultural sources. CARB is also very likely to promote requirements for motor vehicles via new emission controls and increased fuel economy that would significantly lower GHG emissions in future years. CARB is not considering restrictions on growth and new development. Therefore, the DTSP project cannot be seen as inhibiting California's ability to achieve GHG emission standards. Therefore, no significant cumulative impacts are anticipated.

3. Compliance with Air Quality Planning

The following addresses consistency of the project with the AQMP. As discussed below, consistency with the AQMP is a requirement of CEQA.

An EIR must discuss any inconsistencies between the proposed project and applicable GPs and regional plans (CEQA Guidelines §15125). Regional plans that apply to the proposed project include the South Coast Air Quality Management Plan (AQMP). In this regard, this section will discuss any inconsistencies between the proposed project and the AQMP. The purpose of such a discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the project would interfere with the region's ability to comply with federal and state air quality standards. The SCAQMD's CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the plan if it furthers one or more policies and does not obstruct other policies. The Handbook identifies two key indicators of consistency:

1. Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP (except as provided for CO in Section 9.4 for relocating CO hot spots).

2. Whether the project will exceed the assumptions in the AQMP in 2010 or increments based on the year of project build-out and phase.

Both of these criteria are evaluated in the following sections.

a. Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in the air quality study prepared by Mestre Greve Associates, there will be no significant short-term construction and long-term operational impacts due to the project based on the SCAQMD thresholds of significance. Emissions generated during construction will not be in excess of SCAQMD's threshold criteria, and therefore, it is unlikely that short-term construction activities will increase the frequency or severity of existing air quality violations due to required compliance with SCAQMD Rules and Regulations.

The proposed project will increase regional emissions by an amount greater than the SCAQMD thresholds. However, the consistency criteria pertains to local air quality impacts rather than regional emissions, as defined by the SCAQMD. The SCAQMD has identified CO as the best indicator pollutant for determining whether air quality violations would occur, as a CO hot-spot is most directly related to increased traffic. Nevertheless, the air basin is now in attainment for the CO standards. Exceedances of the CO standards are not expected, and local air quality impact modeling is no longer performed. Local air pollutant concentrations would not be expected to exceed the ambient air quality concentration standards due to local traffic, with or without the project. Because the project is not projected to impact the local air quality, the project is found to be *consistent* with the AQMP for the first criterion.

b. Criterion 2 - Exceed Assumptions in the AQMP

Consistency with the AQMP assumptions is determined by performing an analysis of the project with the assumptions in the AQMP. Thus, the emphasis of this criterion is to ensure that the analyses conducted for the project are based on the same forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The chapters regarding Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management constitute the Core Chapters of the document. These chapters currently respond directly to federal and state requirements placed on the Southern California Association of Governments (SCAG). Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

Since the SCAG forecasts are not detailed, the test for consistency of this project is not specific. The AQMP assumptions are based on projections from local general plans. Projects that are consistent with the local general plan are consistent with the AQMP assumptions. Although the proposed DTSP Update land use designations have not changed significantly from the existing Specific Plan (or existing General Plan), the proposed land uses are more intensive. The City of Huntington Beach Land Use Database Description indicates that the existing Specific Plan generates 49,621 daily trips. The proposed DTSP Update will add 13,397 daily trips, or about a 21% increase in daily trips over

the existing Specific Plan. As such, the change in the project traffic and additional population are not accounted for in the existing Specific Plan, and thus the AQMP. The project must be considered inconsistent with the AQMP because of these increases in traffic and population. Therefore, the second criterion is *not* met for consistency with the AQMP. However, past residential projects within the City of Huntington Beach have not reached the full size allowed under the General Plan for those sites. Many of these projects have been developed to 70% of the total allowable size with the City, which has not reached its full population potential within the time frame previously anticipated. For example, most of the City's new housing growth over the last ten years occurred in the Holly Sea Cliff area. This growth is 33% less than what could have been built at allowed densities. Also, more recent development along the coast, such as the Waterfront Residential and Boardwalk/Mystic Point, which have developed at densities that are 20% and 50% less than allowed. Therefore, the City's population increase has been below that projected by the Southern California Association of Governments and the Department of Finance. The growth associated with the proposed DTSP Update would fall below the SCAG projections for population within the City of Huntington Beach and also the projections used in the 2007 AQMP. Therefore, taking this into consideration, the proposed DTSP Update would result in a less than significant impact with respect to conflicting with the existing AQMP.

4.2.4 Mitigation Measures

1. Short-Term Impacts

NO_X emissions associated with the construction of the project were shown to exceed the threshold of significance without mitigation measures. Mitigation is recommended in the Air Quality Assessment (Volume II, Appendix B) to the greatest extent possible for construction emissions.

During any construction proposed in the DTSP area through the DTSP Update, the property owner/developer and its contractors shall be required to comply with regional rules, which will assist in reducing short-term air pollutant emissions. Rule 403 requires that fugitive dust be controlled with the best available control measures. Table 8 and Table 9 of the Air Quality Assessment (Volume II, Appendix B) enumerate the mitigation measures required to be implemented by SCAQMD on the project. Recommended construction activity mitigation BACMs are included in Mitigation Measure MM 4.2-1 below.

MM 4.2-1 During construction activities, the following Best Available Control Measure shall be implemented where feasible:

- Dust Control
    - Apply soil stabilizers to inactive areas.
    - Prepare a high wind dust control plan and implement plan elements and terminate soil disturbance when winds exceed 25 mph.
    - Stabilize previously disturbed areas if subsequent construction is delayed.
    - Water exposed surfaces and haul roads 3 times per day.
    - Cover all stock piles with tarps.

- Replace ground cover in disturbed areas as soon as feasible.
- Reduce speeds on unpaved roads to less than 15 mph.

- Exhaust Emissions
  - Require 90-day low-NO_X tune-ups for off-road equipment.
  - Limit allowable idling to 5 minutes for trucks and heavy equipment.
  - Utilize equipment whose engines are equipped with diesel oxidation catalysts if available.
  - Utilize diesel particulate filter on heavy equipment where feasible.
  - Utilize low emission mobile construction equipment.
  - Utilize existing power sources when available, minimizing the use of higher polluting gas or diesel generators.
  - Configure construction parking to minimize traffic interference.
  - Plan construction to minimize lane closures on existing streets.
  - A full listing of construction emission controls is included in the Air Quality Assessment for Huntington Beach Downtown Specific Plan dated April 13, 2009 (Appendix B).
- Painting and Coatings
  - Use low VOC coatings and high pressure-low volume sprayers.

2. Long-Term Impacts

Reactive organic gases (ROG) and PM_{10} emissions associated with the operation of the project were shown to exceed the threshold of significance. Mitigation is required.

The following measures shall be considered during the review of each individual project, and applicable measures shall be included as conditions of approval that will reduce GHG emissions:

MM 4.2-2 The City shall require by contract specifications that all diesel-powered equipment used would be retrofitted with after-treatment products (e.g., engine catalysts and other technologies available at the time construction commences) to the extent that they are readily available and cost effective when construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

MM 4.2-3 The City shall require by contract specifications that alternative fuel construction equipment (e.g., compressed natural gas, liquid petroleum gas, and unleaded gasoline) would be utilized to the extent feasible at the time construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

MM 4.2-4 The City shall require that developers within the project site use locally available building materials such as concrete, stucco, and interior finishes for construction of the project and associated infrastructure.

MM 4.2-5 The City shall require developers within the project site to establish a construction management plan with Rainbow Disposal to divert a target of 50% of construction, demolition, and site clearing waste.

MM 4.2-6 The City shall require by contract specifications that construction equipment engines will be maintained in good condition and in proper tune per manufacturer's specification for the duration of construction. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

MM 4.2-7 The City shall require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than five minutes. Diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds shall be turned off when not in use for more than five minutes. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

MM 4.2-8 The City shall require that any new development within the Specific Plan area provide signs within loading dock areas clearly visible to truck drivers. These signs shall state that trucks cannot idle in excess of five minutes per trip.

MM 4.2-9 The City shall require by contract specifications that electrical outlets are included in the building design of future loading docks to allow use by refrigerated delivery trucks. Future project-specific applicants shall require that all delivery trucks do not idle for more than five minutes. If loading and/or unloading of perishable goods would occur for more than five minutes, and continual refrigeration is required, all refrigerated delivery trucks shall use the electrical outlets to continue powering the truck refrigeration units when the delivery truck engine is turned off.

MM 4.2-10 The City shall require that any new development within the project site provide a bulletin board or a kiosk in the lobby of each proposed structure that identifies the locations and schedules of nearby transit opportunities.

MM 4.2-11 The property owner/developer of individual projects within the DTSP will reduce operation-related emissions through implementation of practices identified in SCAQMD's CEQA Handbook and the URBEMIS v9.2.4, some of which overlap. Specific measures are delineated in the DTSP Air Quality Assessment (Volume II, Appendix B).

MM 4.2-12 The following measures, based on these sources, shall be implemented by the property applicant to reduce criteria pollutant emissions from projects associated with the DTSP Update. Additionally, support and compliance with the AQMP for the basin are the most important measures to achieve this goal. The AQMP includes improvement of mass transit facilities and implementation of vehicular usage reduction programs. Additionally, energy conservation measures are included.

- Transportation Demand Management (TDM) Measures
    1. Provide adequate ingress and egress at all entrances to public facilities to minimize vehicle idling at curbsides. Presumably, this measure would improve traffic flow into and out of the parking lot. The air quality benefits are incalculable because more specific data is required.
    2. Provide dedicated turn lanes as appropriate and provide roadway improvements at heavily congested roadways. Again, the areas where this measure would be applicable are the intersections in and near the project area. Presumably, these measures would improve traffic flow. Emissions would drop as a result of the higher traffic speeds, but to an unknown extent.
    3. Synchronize traffic signals. The areas where this measure would be applicable are roadway intersections within the project area. This measure would be more effective if the roadways beyond the project limits are synchronized as well. The air quality benefits are incalculable because more specific data is required
    4. Ensure that sidewalks and pedestrian paths are installed throughout the project area.
- Energy Efficient Measures
    1. Improve thermal integrity of the buildings and reduce thermal load with automated time clocks or occupant sensors. Reducing the need to heat or cool structures by improving thermal integrity will result in a reduced expenditure of energy and a reduction in pollutant emissions. The air quality benefit is unknown.
    2. Install energy efficient street lighting.
    3. Capture waste heat and reemploy it in nonresidential buildings. This measure is applicable to the commercial buildings in the project.
    4. Provide lighter color roofing and road materials and tree planning programs to comply with the AQMP Miscellaneous Sources MSC-01 measure. This measure reduces the need for cooling energy in the summer.
    5. Introduce window glazing, wall insulation, and efficient ventilation methods.
    6. Install low-emission water heaters, and use built-in, energy-efficient appliances.

4.2.5 Level of Significance after Mitigation

1. Short-Term Impacts

The analysis demonstrates that the project will result in a significant short-term air quality impact, specifically for NO_X emissions. This is based on a "worst case" scenario of potentially 50 acres concurrently under construction with multiple projects. It is unlikely that this would occur; however,

the air quality assessment conducted for the project evaluated the highest level of potential impact. The assessment also considered construction activities occurring over the 20-year build-out time frame of the DTSP. Mitigation will reduce NO_X emissions, but not to the point that they will fall under the SCAQMD's thresholds. Therefore, construction emissions of NO_X will exceed the SCAQMD thresholds even after mitigation, and short-term air quality impacts will be significant. PM_{10} and $PM_{2.5}$ emissions, if mitigated to the greatest extent possible, would be reduced to below significant levels.

2. Greenhouse Gases

The project meets the California per capita goals identified in AB 32. Therefore, the GHG report prepared for the project concluded that no mitigation measures are required since no impacts were identified. However, GHG emissions are a significant global, national, state, and local factor contributing to climate change. Therefore, the GHG report prepared by Mestre Greve Associates identified potential conditions of approval that could be required to reduce project GHG emissions, including but not limited to the list of potential measures and programs provided in Mitigation Measure MM 4.2-2 above. This mitigation measure is from CARB Staff Proposal's Potential Performance Standards and Measures.

The application of performance standards and measures result in emission reductions of 20% to 50% for residential land uses and 7% to 15% for commercial land uses based on CARB estimates. Since this project would comply with any regulations promulgated by the CARB and since CARB is not putting any restrictions on growth, this project cannot be seen as interfering with "California's ability to achieve its GHG reduction requirements." Therefore, no significant cumulative impacts are anticipated.

3. Long-Term Impacts

The long-term regional air quality impacts due to the proposed project (primarily due to increased vehicle trips) with the recommended measures above will be reduced to some extent. However, the ROG and PM_{10} emissions would continue to exceed the SCAQMD thresholds and be considered significant and unavoidable.

4.2.6 Significant and Unavoidable Impacts

Analysis demonstrates that NO_X emissions during construction will exceed the SCAQMD thresholds, even after mitigation is applied. Therefore, short-term air quality impacts will be significant.

4.2.7 Cumulative Impacts

Analysis shows that ROG and PM_{10} emissions will continue to exceed the SCAQMD thresholds and will be considered a significant and unavoidable project impact and cumulative impact. All other impact criteria would have a level of less than significant for cumulative impacts.